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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,117	12/15/2003	Daniel Yellin	MP1493 151668	4852

65589 7590 12/12/2007

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EXAMINER	
AGHDAM, FRESHTEH N	
ART UNIT	**PAPER NUMBER**
2611	

MAIL DATE	DELIVERY MODE
12/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/734,117	YELLIN ET AL.	
	Examiner	Art Unit	
	Freshteh N. Aghdam	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *26 and 33-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *26 and 33-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on10/26/2007 has been entered.

Response to Arguments

Applicant's arguments filed 10/26/2007 have been fully considered but they are not persuasive.

Applicant's Argument(s):

Regarding claims 26 and 33-38, the applicant argues "Vilcocq discloses operating in the GSM space and thus, the amplitude does not vary. Vilcocq's system handles phase frequency modulation and not amplitude modulation."

Examiner's Response:

Regarding the argument set forth above, the examiner disagrees with the applicant because: (1) the examiner did not find any teaching that Vilcocq's system works in the GSM space rather, Vilcocq's system has applications in transmitters of radio communication transmitters to perform phase frequency modulation (Par. 1 and 7). (2) the examiner would like to direct the applicant's attention to the fact that the

fractional-N-sigma-delta modulator of the applicant's performs phase frequency modulation as well.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu (US 2005/0058219), and further in view of Hasson (US 2003/0123566).

As to claim 26, Liu discloses a communication device comprising: a baseband processor (Fig. 5, block 500; Par. 48-49); an antenna (Fig. 5, means 506);a power amplifier coupled to said antenna (means 504), the power amplifier being configured to receive a first output of said baseband processor from a signal path that includes a fractional-N-sigma-delta modulator (means 501-503) having a pre-emphasis filter (means 521 and 522) to receive a second output of the baseband processor, and to amplify the first output with a gain that is controlled by a varying amplitude of the second output (Par. 48-51). Liu does not expressly disclose that the antenna is a dipole antenna. Hasson discloses a communication device that utilizes a diploe antenna (Fig. 1, means 108; Claim 6); a power amplifier coupled to the antenna (means 106); and a sigma-delta modulator coupled to the power amplifier (means 102). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Hasson

with Liu in order to transmit the modulated signal via a dipole antenna since dipole antennas show high antenna efficiency and integration flexibility.

Claims 26 and 33-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu and Hasson, further in view of Vilcocq et al (US 2004/0041638).

As to claim 33, Liu and Hasson disclose all the subject matter claimed in claim 26, except for the emphasis filter is optimized according to predefined optimization criteria. Vilcocq discloses a frequency phase modulation (e.g. fractional-N-sigma-delta modulator) that includes a pre-emphasis filter, wherein a transfer function of the pre-emphasis filter is optimized according to predefined optimization criteria (Par. 6, 12-13, and 54-55). Therefore, it would have been obvious to one of ordinary skill in the art to modify the system of Liu and Hasson by utilizing a pre-emphasis filter that is adaptive in order to adjust the digital values to compensate at least for variations in voltage, temperature, and/ or aging (Par. 38-39).

As to claim 34, Liu discloses that the transfer function of the pre-emphasis filter is a finite impulse response (Par. 25).

As to claim 35, Vilcocq further discloses that determining the transfer function includes determining the transfer function to be optimized according to the predefined optimization criteria that includes a mean squared error of an input to the filter and an output to the voltage controlled oscillator (Par. 12-13). Vilcocq does not expressly disclose that the optimization criteria relate to the input to the pre-emphasis filter and an input to the voltage-controlled oscillator. However, one of ordinary skill in the art would

recognize that optimization criteria of Vilcocq not only relate to the input of the voltage-controlled oscillator (i.e. output of the loop filter) but also relate to the input to the voltage-controlled oscillator because the output to the PLL includes the output to the VCO in addition to the input to the VCO. Therefore, it would have been obvious to one of ordinary skill in the art to improve the system performance of the digital synthesizer by adapting the transfer function of the filter to the linearized response of the phase locked loop variations.

As to claim 36, Liu discloses that said fractional-N-sigma-delta modulator includes at least: a sigma-delta converter (means 525) coupled to the pre-emphasis filter (means 521 and 522); and a fractional-N phase locked loop unit (means 526) coupled to an output of said sigma-delta converter (means 525). Liu does not expressly disclose that the transfer function of said pre-emphasis filter is to be optimized according to predefined optimization criteria; and wherein said optimization criteria are related to an input to said pre-emphasis filter and are related to an input to a voltage controlled oscillator of the fractional-N-phase locked loop unit. Vilcocq discloses a fractional-N-sigma-delta modulator including a sigma-delta converter (Fig. 2, means 15); and a fractional-N phase locked loop unit coupled to the output of said sigma-delta converter (means 11-14), wherein the transfer function of said pre-emphasis filter is to be optimized according to predefined optimization criteria (Par. 8-13 and 54-55). Vilcocq is not explicit about the optimization criteria relate to an input to said filter and an input to the voltage-controlled oscillator. However, one of ordinary skill in the art would

recognize that optimization criteria of Vilcocq not only relate to the input of the voltage-controlled oscillator (i.e. output of the loop filter) but also relate to the input to the voltage-controlled oscillator because the output to the PLL includes the output to the VCO in addition to the input to the VCO. Therefore, it would have been obvious to one of ordinary skill in the art to improve the system performance of the digital synthesizer by adapting the transfer function of the filter to the linearized response of the phase locked loop variations.

As to claim 37, Liu discloses that the transfer function of the pre-emphasis filter is a finite impulse response (Par. 25).

As to claim 38, Liu discloses that the transfer function of the pre-emphasis filter is an infinite impulse response (Par. 25-26).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Freshteh N. Aghdam whose telephone number is 571-272-6037. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Freshteh Aghdam
Examiner
Art Unit 2611

December 9, 2007

CHIEH M. FAN
SUPERVISORY PATENT EXAMINER